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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,896	12/17/2001	Yong Sung Ham	49128-5033	7304

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EXAMINER

LAO, LUN YI

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 02/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/015,896

Applicant(s)

HAM, YONG SUNG

Examiner

Lao Y Lun

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Uehara et al(6,329,980) in view of Furuhashi et al(6,556,180).

As to claims 1-4 and 8-9 , Uehara et al teach a color LCD display apparatus for increasing a data voltage of a current frame if the data voltage of the current period is greater than the previous period, and decreasing the data voltage of the current frame if the data voltage of the current period is less than the previous period(see figures 1, 4-6, 14; column 1, lines 49-51 and column 9, lines 6-60).

Uehara et al fail to disclose a period is a frame period.

Furuhashi et al teaches a delay period is a frame period(see figure 1 and column 2, lines 32-43). It would have been obvious to have modified with the teaching of Furuhashi et al, since Uehara et al have been disclosed a delay period could be changed(see Uehara et al's column 7,

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lines 9-16), a frame period is a common delay period in a display and it has been generally recognized as being within the level of ordinary skill in the art.

As to claim 2, Uehara et al teach a method for increasing data voltage of the current frame is proportionally increased with respect to a difference between the current data voltage and the previous data voltage(see figure 6).

As to claims 3-4, Uehara et al teach a data voltage having most significant bit data(VDL4) and least significant bit data(VDL1)(see figures 4-6, 14 and column 20, lines 2-4).

As to claim 8, Uehara et al(6,329,980) teach an LCD display apparatus having a loop-up table(103, ROM)(see figure 14 and column 14, lines 25-45).

As to claim 9, Uehara et al teach an LCD display apparatus having a liquid crystal display panel(34); a timing controller(33); a data driver(36) and a gate driver(35)(see figure 4 and column 9, lines 6-13).

3. Claims 5-7, 10-11 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Uehara et al(6,329,980) in view of Furuhashi et al(6,556,180) and Kuga(5,828,367).

Uehara et al fail to disclose display apparatus for decreasing a data voltage of a current frame if the data voltage of the current frame is the same as the previous frame.

Kuga teach an LCD display apparatus for decreasing a data voltage of a current frame if the data voltage of the current frame is the same as the previous frame(see figures 4-5; column 2, lines 33-39 and column 5, lines 17-25). It would have been obvious to have modified Uehara et al

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as modified with the teaching of Kuga, so as to save power in an LCD display(see abstract and column 2, lines 33-39).

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Uehara et al(6,329,980) in view of Furuhashi et al(6,556,180), Kuga(5,828,367) and Kasahara et al(6,414,657).

Uehara et al fail to disclose a comparator having an exclusive logic.

Kasahara et al teach a comparator(62b) having an exclusive-OR operation(see figure 21 and column 27, lines 37-52). It would have been obvious to have modified Uehara et al as modified with the teaching of Kasahara et al, since Uehara et al have a comparator(2)(see figure 4) and an exclusive-OR logic function could determine whether two input data are different or same.

Conclusion

5. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Okumura et al(6,344,850) teach a display device for receiving differential data of delayed previous image data and present image data from a data transmitting section.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lun-yi, Lao whose telephone number is (703) 305-4873.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached at (703) 305-4938.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

January 28, 2004

Lun-yi Lao

Lun-yi Lao

Primary Examiner